NAME _____ CLASS _____ DATE _____

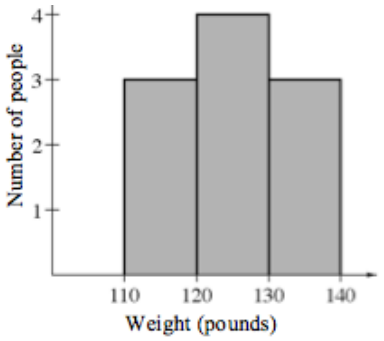
DISPLAYS OF DATA

Histograms

A histogram is a method of showing data. It uses a bar to show the frequency (the number of times something occurs). The frequency measures something that changes numerically. (In a bar graph the frequency measures something that changes by category.) The intervals (called bins) for the data are shown on the horizontal axis and the frequency is represented by the height of a rectangle above the interval. The labels on the horizontal axis represent the lower end of each interval or bin.

Example: Sam and her friends weighed themselves and here is their weight in pounds: 110, 120, 131, 112, 125, 135, 118, 127, 135, and 125. Make a histogram to display the information. Use intervals of 10 pounds.

Solution: See histogram at right. Note that the person weighing 120 pounds is counted in the next higher bin.



Box Plots

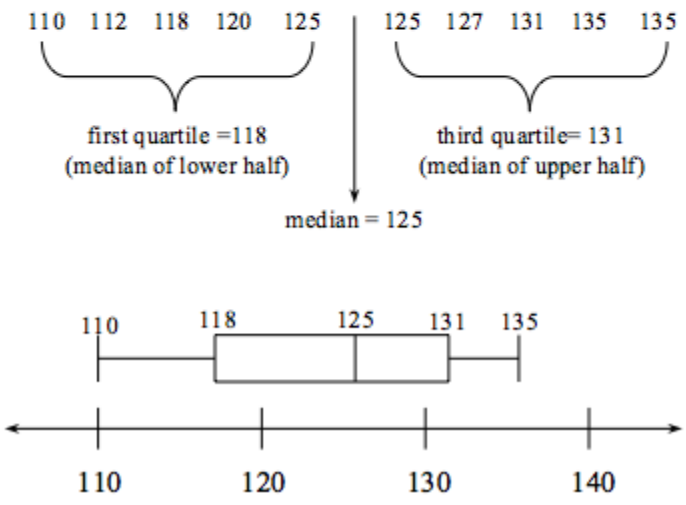
A box plot displays a summary of data using the median, quartiles, and extremes of the data. The box contains the "middle half" of the data. The right segment represents the top 25% of the data and the left segment represent the bottom 25% of the data.

Example: Create a box plot for the set of data given in the previous example.

Solution:

Place the data in order to find the median (middle number) and the quartiles (middle numbers of the upper half and the lower half.)

Based on the extremes, first quartile, third quartile, and median, the box plot is drawn. The interquartile range IQR = 131 − 118 = 13.



ON A SEPARATE PIECE OF GRAPH PAPER:

Create a COMBINATION (one number line) box plot **and** histogram for each of the following.

- Use the information on the front to guide your work on the following sets of data.
- Label each of the 5 values on each box plot.
- Calculate the Interquartile Range (IQR) on each box plot.
- Show all work.

6. Laps jogged by 15 students:
   10, 15, 10, 13, 20, 14, 17, 10, 15, 20, 8, 7, 13, 15, 12
7. Number of days of rain:
   6, 8, 10, 9, 7, 7, 11, 12, 6, 12, 14, 10
8. Number of times a frog croaked per minute:
   38, 23, 40, 12, 35, 27, 51, 26, 24, 14, 38, 41, 23, 17
9. Speed in mph of 15 different cars:
   30, 35, 40, 23, 33, 32, 28, 37, 30, 31, 29, 33, 39, 22, 30
10. Typing speed of 12 students in words per minute:
    28, 30, 60, 26, 47, 53, 39, 42, 48, 27, 23, 86
11. Number of face cards pulled when 13 cards are drawn 15 times:
    1, 4, 2, 1, 1, 0, 0, 2, 1, 3, 3, 0, 0, 2, 1
12. Height of 15 students in inches:
    48, 55, 56, 65, 67, 60, 60, 57, 50, 59, 62, 65, 58, 70, 68